Comparing Trans Obturator Tension Free Vaginal Tape Surgery with Needleless Suburethral Sling

Trans Obturatuar Askı Operasyonu ve İğnesiz Subüretral Askı Operasyonunun Karşılaştırılması

TOT mu Minisling mi? / TOT vs. Minisling

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Özet

Amaç: Üriner inkontinans, Uluslararası Kontinans Cemiyeti tarafından, sosyal ve hijyenik olarak insan hayatında sorun yaratan ve objektif olarak kanıtlanabilen istemsiz idrar kaçırma olarak tarif edilmiştir. Bu çalışmada trans obturatuar askı operasyonu [TOT] veya subüretral askı metodunu uyguladığımız 51 hastada elde ettiğimiz tecrübe ve sonuçları karşılaştırmayı amaçladık. Gereç ve Yöntem: Aralık 2011 ve Aralık 2012 arasında stres inkontinans şikayeti olan 51 hasta çalışmaya dahil edildi. Tüm hastalar ürojinekolojik ve ürodinamik olarak muayene edilip objektif olarak stres inkontinans tanısı aldıktan sonra TOT veya subüretral askı yöntemiyle opere edildi ve kan kaybı; operasyon süresi, cerrahi şifa açısından retrospektif olarak karşılaştırıldı. Bulgular: Operasyon süresi TOT için ortalama 27 ± 6 dakika ve subüretral askı için ortalama 11 ± 4 dakika idi. Bu süre istatistiksel olarak anlamlı bulundu. Tartışma: TOT ve subüretral askı operasyonlarının her ikisi de rejyonel anestesi altında dahi uygulanabilen minimal invaziv yöntemlerdir. Subüretral askı operasyonu, TOT operasyonun tüm avantajlarına sahip olup daha güvenli ve daha kısa bir operasyondur.

Anahtar Kelimeler

Tot; Minisling; İnkontinans; Askı

Abstract

Aim: Urinary incontinence is described by the International Continence Society as an involuntary urinal discharge that can be objectively proved to cause hygenic and social problems. We aim to share our surgical experience in 51 patients in which trans obturator tension free vaginal tape procedure [TOT] is compared with needleless suburethral sling placement, also known as minisling. Material and Method: 51 patients complaining of genuine stress incontinence between December 2011 and December 2012 were retrospectively involved in the study group. All patients were examined and urodynamically tested for diagnosis. After getting positive results as genuine stress incontinence, surgery was planned. Patients were operated using outside-inside TOT technique and minisling technique, results were compared in terms of blood loss, operation time, and the surgical effectiveness of the technique. Results: Operation time was 27 ± 6 minutes for TOT and 11 ± 4 minutes for minisling respectively. Comparison of operation time and blood loss was in favor of the minisling group. Disscussion: TOT and minisling are both described as minimally invasive procedures that can be performed under regional anesthesia to an outpatient with minisling bearing all the advantages of TOT without needle complications.

Keywords

Tot; Minisling; Incontinence; Tension Free; Vaginal Tape

DOI: 10.4328/JCAM.2320 Received: 04.02.2014 Accepted: 08.03.2014 Printed: 01.11.2015 J Clin Anal Med 2015;6(6): 748-750
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Introduction

International Continence Society describes urinary incontinence as an involuntary urinal discharge objectively proved to cause hygienic and social problems [1-2].

The main reasons for incontinence, in about 95% of patients, are urethral sphincter deficiency or unwanted detrussor contractions [3]. Therefore it is very important to distinguish between incontinence types in diagnosis, of which, treatment is remarkably different, for each subtype [3].

Detailed patient history and a proper pelvic examination to especially identify anatomical defects and certain urogynecological tests like the uroflow urodynamic measurements, valsalva and Q-tip test is performed to help in diagnosis [4]. Urinary incontinence should always be taken for serious whenever it is encountered in a woman's life and carefully studied using necessary urogynecological diagnostic measures to identify the underlying pathology and to act accordingly to provide an effective and appropriate treatment modality [5].

Conservative options like medical treatment, pelvic and periurethral muscle physiotherapy, mechanical devices and behavioral therapy can be described along with surgical procedures that are used in urethral sphincter deficiency but there is still no consensus on which treatment modality should be used primarily on these patients [6].

Therefore it is very important do decide on which kind of surgical operation should be performed along with a careful study of the underlying pathophysiology using specific urogynecological diagnostic procedures.

Here in this study we aim to share our surgical experience in incontinence patients that were complaining of genuine stress urinary incontinence [SUI], in which outside-inside trans obturator tension free vaginal tape procedure [TOT] is compared with needleless urethral sling placement, (Contasure-Needleless Sling) also known as minisling, in terms of blood loss, operational time and complications.

Material and Method

Our study is based retrospectively on a total of 51 patients complaining of genuine stress incontinence between December 2011 and December 2012. Urinary culture tests were performed to rule out any infectious cause, 10 patients were in the post-menopausal period and were excluded from the study group to rule out incontinence due to vaginal atrophy since we aim to compare surgical results. In those patients medical treatment with vaginal estradiol was preferred.

The remaining 41 patients were carefully examined for stress incontinence, asked to perform a valsalva, asked to fill out a specifically prepared form and tested [Q-tip test] for diagnosis. Patients in the study group were required to complete a specifically designed questionnaire detailing their complaints which also included Stress, Emptying, Anatomic, Protection and Instability [SEAPI] scores pre and post operatively [in the first, third and sixth months after the operation]. The questions concerned risk factors and consequences of female urinary incontinence, its diagnosis and clinical assessment, urodynamic investigations, conservative treatment, surgical treatment, complications of suburethral tape surgery and the association of pelvic organ prolapse and urinary incontinence. Afterwards surgery was planned, 21 patients were operated using the outside-inside TOT technique using material made of polypropylene monofilament mesh approximately 450×11 mm with a plastic cover with ends that are attached to stainless steel introducer needle used for placement. 20 patients were operated with minisling without using the guide needle to pass through the obturator fossa. In these 20 patients only a sub-urethral vertical incision was made followed by mucosal dissection to enable the fixation and placemet of the synthetic sling which is made of polypropylene monofilament, with dimensions of approximately 114×12 mm which has ends that are slightly wider as they form a pocket to provide sling tissue ingrowth helping the sling maintain stability under urethra (Figure 1).

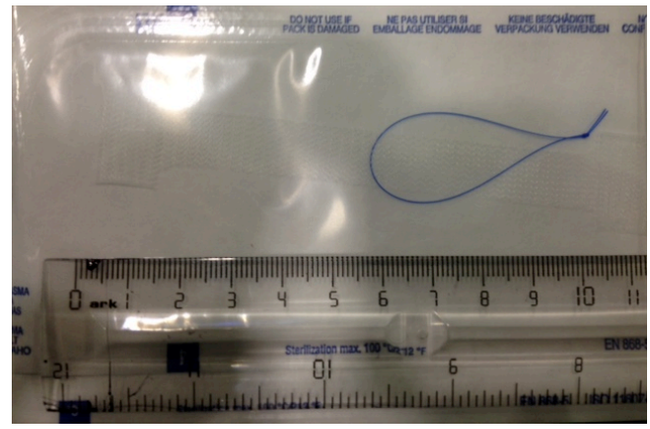


Figure 1. Synthetic non-absorbable sling

All patients were recalled for urogynecological examination to reevaluate the surgical outcome in the first, third and sixth months after the operation respectively.

Surgical cure was defined as no involuntary urinal discharge with valsalva in the first, third and sixth months along with no subjective complaints of incontinence in post operative reevaluation.

All authors declare that all experiments have been examined and approved by the appropriate ethics committee in which the study was undertaken.

Results

Statistical Study Methods

Mann-Whitney U test was used for comparing data and the results were evaluated in a 95% safety zone and a P value lower than 0.05.

Patients were all multiparous with a mean age of 41 ± 3,2 and a mean parity of 2±1. Patients were all discharged in postoperative day 1, no significant blood loss was noted in both groups, with a mean of 110 ± 15cc in the TOT group and 65 ± 10cc in the minisling group respectively. Blood loss, when compared between two groups was statistically lower in the minisling group (p=.05).

Mean operation time was 27 ± 6 minutes for TOT and 11 ± 4 minutes for minisling respectively. Operation time, when compared between two groups was noticably shorter in the minisling group (p=.05).

Nineteen out of 21 patients (cure rate: 90.47 %) in the TOT

group and 18 out of 20 patients (cure rate: 90%) in the minisling group were found to be cured of stress incontinence when re-evaluated in the first, third and sixth months after the operation. Mesh extrusion was observed in 2 patients in both groups in post operative first month, designated as surgical failure, said patients were re-operated using same techniques.

Urogynecological examinations were performed to confirm these foundings both objectively and subjectively (Table1, Table 2).

Table 1. *Mann-Whitney U Test comparing per-operative data and cure rate between the groups, P=.05

[n=41]	TOT [n=21]	MiniSling [n=20]	P
Operation Time in effective surgery [minutes]	27 ± 6	11 ± 4	0,01**
Blood Loss in effective surgery [cc]	110 ± 15	65 ± 10	0,01**
Cure Rate	19 [90.47 %]	18 [90 %]	

Mann WhitneyU test ** p=.05

Table 2. Post operative evaluation results.

[n=41]	TOT [n=21]	MiniSling [n=20]
Mesh Extrusion	2	2
Urination Difficulty	1	1
Recurrent Urinary Infections	3	1
Urinary discharge with valsalva	0	0
Post operative evaluation results		

Discussion

Although there is stil no consensus, when surgery is the planned course of action, the "integral theory" introduced by Petros and Ulmsten that emphasizes the importance of fixation at the mid-urethra instead of at the level of the bladder neck is generally the widely accepted notion at present [7]. Loosely applied mid-urethral sling placement is considered to be the new gold standard therapy for female stress incontinence. TOT is described as a minimally invasive procedure that can be performed under local anesthesia to an outpatient. In this procedure sub-urethral anatomic reinforcement and suspension is provided without needing to reposition the bladder or the need to hook up the periurethral tissue to the pelvic structures as if in a Burch operation [8]. Klutke JJ mentioned that, in a similar procedure that backs up and suspends sub-urethral anatomy, urethral resistance tends to rise in patients while urinating, resulting in continence [9].

In general sling operations, as a procedure, have the advantage of being able to be performed over patients that had been previously operated due to incontinence using different techinques and it is an operation that can be combined with other gynecological operations such as hysterectomy [10-11-12-13].

Since it is usually performed under local or regional anesthesia it gives the surgeon the chance to evaluate the success of the operation per operatively to determine if continence had been achieved hence improving cure rates dramatically. Our cure rates were slightly higher than what is generally reported in the current literature, we assume that was due to the size of our study group.

Complications, though rare in the outside-inside technique, such as obturator artery damage, visceral damage, mesh extrusion caused by vaginal fistulae may occur mainly during the insertion of the guide needle.

Minisling procedure on the other hand, has all the advantages of TOT without needle complications and also is a much shorter and controlled surgical procedure mainly because the guide needle is not required to pass through obturator fossa into the sub urethral space to place the sling. But then again it would be unwise to assume it does not have its own complications, such as mesh extrusion, as was observed in our study group, which is a significant cause of surgical failure in minisling technique, mostly because of incorrect placement and usually requires re-operation.

We are aware that comparing different surgical techniques is always a difficult subject due to numerous variables that may or may not have been taken into effect but when everything discussed above is considered, it can be safe to conclude that minisling is an effective and easy to learn surgical technique that has significant lower rates of complication and many other advantages including shorter hospital stay, short term catheterization, shorter operational times and fewer blood loss with similar cure rates when compared to TOT and other techniques concerning treatment of genuine stress incontinence and yet for more definitive conclusions new studies including larger groups are always in demand.

Competing interests

The authors declare that they have no competing interests.

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How to cite this article:
Bakay K, Aytekin F, Celik NY. Comparing Trans Obturator Tension Free Vaginal Tape Surgery with Needleless Suburethral Sling. J Clin Anal Med 2015;6(6): 688-90.